

# Ocean/Wind Power Ecological Baseline Studies



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF SCIENCE, RESEARCH, & TECHNOLOGY

# Ocean/Wind Power Ecological Baseline Studies

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NJDEP





**STATE OF NEW JERSEY**  
**Blue Ribbon Panel on Development of  
Wind Turbine Facilities in Coastal Waters**

**FINAL REPORT**  
**TO**  
**GOVERNOR JON S. CORZINE**

**APRIL 2006**



# Background

- New Jersey's Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters
- Recommendations
  - Natural Resources
  - Economics, Tourism
  - Ocean Uses



# Project Objectives

- Address Natural Resource portion of Blue Ribbon Panel Recommendation No. 4:
  - “Baseline data should be collected regarding the distribution, abundance, and migratory patterns of avian species, fish, marine mammals and turtles in the offshore area where development may be feasible.”



# Project Design

- Blue Ribbon Panel
- European Studies
- Technical Review Committee
  - USFWS, NMFS, MMS, NJDEP
  - North American Methods





# **Horns Rev Offshore Wind Farm**

## **Environmental Impact Assessment Summary of EIA Report**

Maj 2000







# Base-line investigations of birds in relation to an offshore wind farm at Horns Rev: results and conclusions 2000/2001

NERI Report  
Commissioned by Tech-wise A/S





# Towards standardised seabirds at sea census techniques in connection with environmental impact assessments for offshore wind farms in the U.K.

A COMPARISON OF SHIP AND AERIAL SAMPLING METHODS FOR MARINE BIRDS, AND THEIR APPLICABILITY TO OFFSHORE WIND FARM ASSESSMENTS



Kees (C.J.) Camphuysen<sup>1</sup>, Tony (A.D.) Fox<sup>2</sup>, Mardik (M.F.) Leopold<sup>3</sup> & Ib Krag Petersen

<sup>1</sup>Koninklijk Nederlands Instituut Voor Onderzoek Der Zee (Royal NIOZ), The Netherlands

<sup>2</sup>National Environmental Research Institute, Denmark

<sup>3</sup>Alterra, The Netherlands

Final version: April 2004



This report was commissioned by COWRIE



# New Jersey Offshore Wind Energy: *Feasibility Study*

Final Version  
(With NJ DEP Comments)

Prepared For:  
**New Jersey Board of Public Utilities**

Prepared By:  
**Atlantic Renewable Energy Corporation**

**AWS Scientific, Inc.**

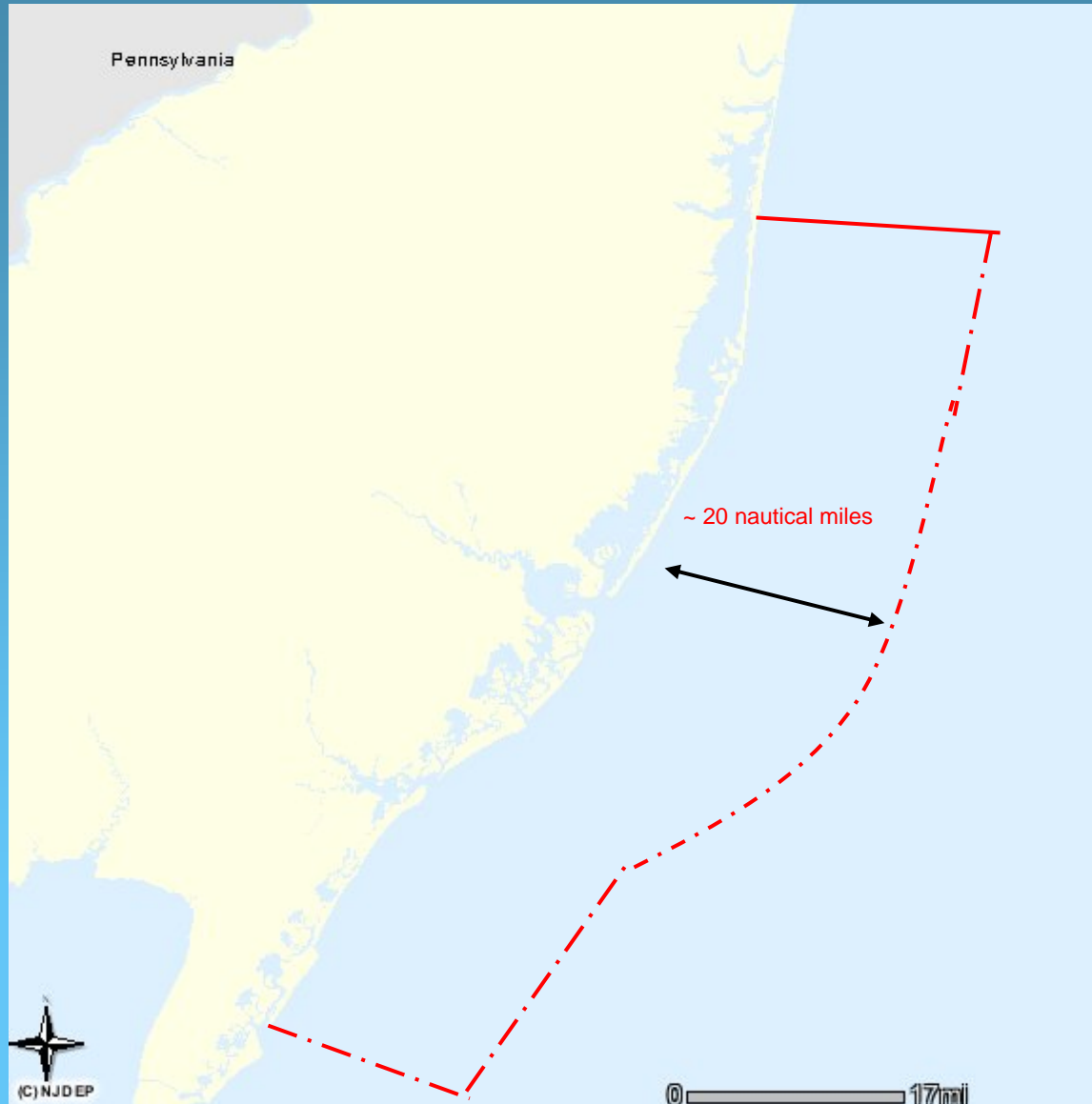
Mean Wind Speed  
at 70 Meters

Bathymetry



December 2004

# Study Area



# Specific Objectives

- What are the abundance, distribution, flight behavior (i.e., height and regular pathways), and utilization (e.g., feeding, breeding) of bird species in the Study Area?
- What are the abundance, utilization, and distribution (e.g., feeding, breeding) of marine mammals in the Study Area?
- What are the abundance, utilization, and distribution (e.g., feeding, breeding) of sea turtles in the Study Area?



# Specific Objectives

- What are the abundance, utilization, and distribution of other marine biota (e.g., fish, shellfish) in the Study Area?
- What is the distribution of other existing natural resources, including, but not limited to, shoals, sand borrow areas, artificial reef sites, and other pre-existing resources in the Study Area?
- Using predictive modeling, mapping, and environmental assessment methodologies what portions of the study area are more or less suitable for wind/alternative energy power facilities based on potential ecological impacts?



# Field Studies

- Three Primary Surveys:
  - Avian
  - Marine Mammal
  - Sea Turtle
- Supporting Studies:
  - Oceanographic



# Other Studies

- Literature Review
- Data Compilation (digital and historical)
- Model Development
- Impact Assessment
- GIS
- Reporting





# Budget

- \$4.5 million
- Baseline Surveys: >80% of budget
- Remaining Budget:
  - Literature Review/Data Compilation
  - Predictive Modeling
  - Impact Assessment
  - Reporting



# Schedule

- Solicitation for Research Proposals (SRP) issued March 19, 2007
- Proposals received May 2007
- Proposals reviewed by TRC, followed by Oral Presentations
- Bidder selection in June 2007
- Award: September to Geo-Marine, Inc.



# Schedule

- 18-month study
- Start January 2008
- Field Work: 2008 – 2009
- Interim Report – January 2009
- Draft Final Report – September 2009



# Overall Process

- Technical Review Committee – State & Federal Agencies
- Interested Party Group
- Peer Review Group – Independent Review



# Interested Party Group (IPG)

- Organizations that have an interest in offshore power (e.g., environmental, natural resource or development standpoint)
- DEP outreach
  - Updates on the project's progress and results



# Challenges

- NOAA Permit – Marine Mammal Protection Act & Endangered Species Act
  - Need due to “take” of protected species
- Weather – Visual surveys need to be conducted under good conditions
- Vessels – Limitations on operation (e.g., storms, availability)
- Budget





## DIVISION OF SCIENCE, RESEARCH & TECHNOLOGY

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### Ocean/Wind Power Ecological Baseline Studies



[Related Sites](#)

[Blue Ribbon Panel on Development of Wind  
Turbine Facilities in Coastal Waters](#)

The New Jersey Department of Environmental Protection (NJDEP), Division of Science, Research & Technology (DSRT) issued a Solicitation for Research Proposals (SRP) in order to address the need for baseline ecological/natural resource data as recommended by the State of New Jersey Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters.

The objective of this study is to conduct baseline studies in waters off New Jersey's coast to determine the current distribution and usage of this area by ecological resources. The scope of work includes the collection of data on the distribution, abundance and migratory patterns of avian, marine mammal, sea turtle and other species in the study area over an 18-month period.

- [Agenda - Interested Party Group Meeting, November 9, 2007](#)
  - [Response to Bidders Questions](#) (May 11, 2007)
    - [Addendum](#) (May 11, 2007)
- [Solicitation of Proposal - Ocean/Wind Power Ecological Baseline Studies](#) (April 19, 2007)

For more information regarding this project, please contact [Gary A. Buchanan](#), Ph.D., Bureau of Natural Resources Science  
Division of Science, Research & Technology, NJDEP.

<http://www.nj.gov/dep/dsr/ocean-wind/>





# Geo-Marine Inc. (GMI)

- Strong Proposal and Plan
- Experienced Team
  - Staff
  - Projects
  - Management
- Dan Wilkinson, Ph.D. – GMI Project Manager

